

ABSTRACT

Garut district is a tourist destination visited by tourists in West Java. In this area there are some excellent tourist attractions such as Cikembulan Animal Park, Puncak Darajat and Cipanas, that every day in the coming thousands of tourists. The need for voice and data communications services is needed in this area. The condition of the LTE network in Garut district area is not fully uniform. Based on survey results, blank spot problems ($RSRP > -100$ dBm), poor signal quality ($SINR > -20$ dB), and low throughput in some sub-districts were founded.

To overcome this problems, LTE network expansion planning needs to be done in some sub-districts. Expansion planning is carried out using two scenarios, LTE (FDD) at 1800 MHz and LTE-A using carrier aggregation methods at 850 MHz and 1800 MHz combined with SFR. In the expansion planning, analysis and simulation using software Atoll 3.2.1.

In this Final Project, after the expansion plan is obtained an increase in coverage area coverage of 331.76 km² (92.29142%) with quality that meets the standards of KPI. The result of simulation planning of expansion of coverage area using LTE (FDD) got 88 site amount, RSRP parameter value average -65.91 dBm, SINR average 18.02 dB, throughput 24.962 Mbps, and user connected 93.3%. While the result of simulation of expansion of coverage area using LTE-A (Carrier Aggregation) combined with SFR obtained the number of sites as much as 69, RSRP parameter value average -48,88 dBm, SINR average 22.5 dB, throughput 28.923 Mbps, and user connected 94.5%.

Keyword : LTE, LTE-A, Carrier Aggregation, SFR, RSRP, SINR, User Connected, Throughput